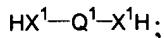


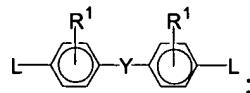
WHAT IS CLAIMED IS:

- 1 1. A process, comprising a) reacting monomer A with monomer B to give arylene ether
2 monomer C and b) reacting monomer C with another monomer D to give a polymer,
3 wherein:

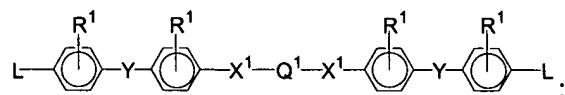
4 monomer A is



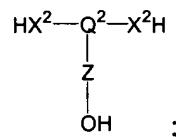
6 monomer B is



8 arylene ether monomer C is



19 monomer D is



Q^1 comprises at least one aryl or heteroaryl group;

Q^2 comprises at least one aryl or heteroaryl group;

X^1 is O bonded directly to an aryl carbon of Q^1 ;

X^2 is O bonded directly to an aryl carbon of Q^2 ;

Z is a linker comprising at least one $-(C(R^2)_2)-$ group;

Y is a single bond or a linker group:

L is a nucleophilic aromatic leaving substituent

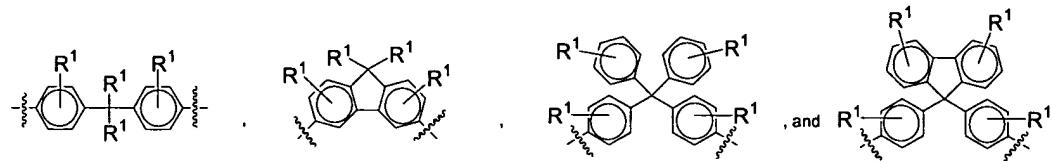
R^1 is independently at each occurrence H, a halogen, an alkyl group, a heteroalkyl group, an aryl group, or a heteroaryl group; and

R^2 is independently at each occurrence H, an alkyl group, or a heteroalkyl group

- 1 2. The process of Claim 1, wherein Q¹ comprises at least two aryl or heteroaryl groups.

1 3. The process of Claim 2, wherein Q¹ comprises a methylenediphenyl group in which the
2 methylene carbon is bonded to at least 2 phenyl groups.

- 1 4. The process of Claim 3, wherein Q¹ is selected from the group consisting of

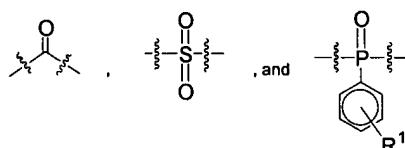


- 1 5. The process of Claim 1, wherein Q¹ comprises a polycyclic aromatic ring system or a
2 polycyclic heteroaromatic ring system.

- 1 6. The process of Claim 1, wherein Y is a single bond, an alkene or an alkyne group.

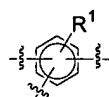
- 1 7. The process of Claim 1, wherein Y is a ketone, a sulfone, or a phosphine oxide.

- 1 8. The process of Claim 7, wherein Y is selected from the group consisting of



- 3 9. The process of Claim 1, wherein Q² comprises a 6-membered aromatic or
4 heteroaromatic ring, a polycyclic aromatic ring system, or a polycyclic heteroaromatic
5 ring system.

- 1 10. The process of Claim 9, wherein Q² comprises



- 1 11. The process of Claim 1, wherein Z is -(CH₂)_n- or -(CH₂CH₂O)_n-, wherein n = 1 to 10.

- 1 12. The process of Claim 1, wherein:

2 Q¹ comprises a methylenediphenyl group in which the methylene carbon is
3 bonded to at least 2 phenyl groups;

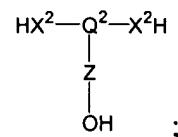
4 Q² comprises a phenyl ring;

5 Y is a single bond;

6 and

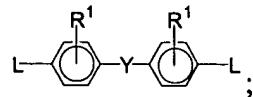
7 Z is -CH₂-

- 1 13. The process of Claim 12, wherein R¹ is fluorine.
- 1 14. The process of Claim 12, wherein L is a halogen, nitro group, or phenylsulfonyl group.
- 1 15. The process of Claim 14, wherein L is fluorine.
- 1 16. The process of Claim 12, wherein the methylene carbon of Q¹ is bonded to at least three
2 phenyl groups.
- 1 17. The process of Claim 1, wherein reacting monomer A with monomer B to form
2 monomer C comprises heating a mixture of monomer A and monomer B in a dipolar
3 aprotic solvent to at least 110 °C.
- 1 18. The process of Claim 17, further comprising cooling the reaction mixture of monomer A
2 and monomer B after monomer C is formed and before monomer D is reacted with
3 monomer C.
- 1 19. The process of Claim 18, wherein reacting monomer C with monomer D to form a
2 polymer comprises heating a mixture of monomer C and monomer D in a dipolar aprotic
3 solvent to at least 110 °C, thereby providing a polymer solution.
- 1 20. The process of Claim 19, further comprising filtering the polymer solution while the
2 temperature of the polymer solution is greater than about 80 °C.
- 1 21. A process, comprising a) reacting monomer A with monomer B to give arylene ether
2 monomer C and b) reacting monomer C with another monomer D to give a polymer,
3 wherein:
4 monomer A is



6 monomer B is

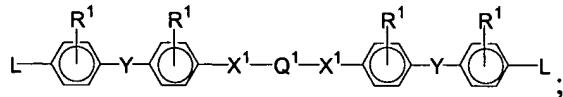
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8

arylene ether monomer C is

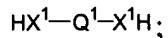
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10

monomer D is

11



12

Q^1 comprises at least one aryl or heteroaryl group;

13

Q^2 comprises at least one aryl or heteroaryl group;

14

X^1 is O bonded directly to an aryl carbon of Q^1 ;

15

X^2 is O bonded directly to an aryl carbon of Q^2 ;

16

Z is a linker comprising at least one $-(C(R^2)_2)-$ group;

17

Y is a single bond or a linker group;

18

L is a nucleophilic aromatic leaving substituent.

19

R^1 is independently at each occurrence H, a halogen, an alkyl group, a heteroalkyl group, an aryl group, or a heteroaryl group; and

21

R^2 is independently at each occurrence H, an alkyl group, or a heteroalkyl group.